Glossary

Acronyms and Abbreviations

A	ACDEH	Alameda County Department of Environmental Health.
	ACEHS	Alameda County Environmental Health Services.
	ACG	Ambient Concentration Guide.
	ACOE	Army Corps of Engineers.
	ALARA	As low as reasonably achievable.
	ANOVA	Analysis of variance (see Technical Terms).
	ANSI	American National Standards Institute.
	ATSDR	Agency for Toxic Substances and Disease Registry.
	AWQC	Ambient water quality criteria.
B	BAAQMD	Bay Area Air Quality Management District. The local agency responsible for regulating stationary air emission sources (including the LLNL Livermore site) in the San Francisco Bay Area.
	BETX (or BTEX)	Benzene, ethyl benzene, toluene, and xylene.
	BMP	Best management practice.
	BOD	Biochemical oxygen demand.
	Bq	Becquerel (see Technical Terms).
C	Cal/EPA	California Environmental Protection Agency.
	CAM	Continuous air monitor.
	CAMP	Corrective Action Monitoring Plan.
	CAP88-PC	Computer code required by the EPA for modeling air emissions of radionuclides.
	CARB	California Air Resources Board.
	CAREs	(Tri-Valley) Citizens Against a Radioactive Environment.
	CCR	California Code of Regulations. Codification of regulations promulgated by the State of California.

	CDFG	California Department of Fish and Game.
	CDHS	California Department of Human Services.
	CEI	Compliance Evaluation Inspection.
	CEPRC	Chemical Emergency Planning and Response Commission.
	CEQA	California Environmental Quality Act of 1970. CEQA requires that all California state, local, and regional agencies document, consider, and disclose to the public the environmental implications of their actions.
	CERCLA	Comprehensive Environmental Response, Compensation and Liability Act of 1980. Administered by EPA, this program, also known as Superfund, requires private parties to notify the EPA after the release of hazardous substances and undertake short-term removal and long-term remediation. If conditions exist that could create the threat of hazardous substances being released, the Act also requires the remediation of those conditions.
	CERCLA / SARA	In 1986, the Superfund Amendments and Reauthorization Act (SARA) was enacted, which amended and reauthorized CERCLA for five years at a total funding level of $8.5 billion.
	CES	Chemistry and Materials Science Environmental Services. An LLNL laboratory that analyzes environmental samples.
	CFC	Chlorofluorocarbon (see Technical Terms).
	CFF	Contained Firing Facility.
	CFR	Code of Federal Regulations. A codification of all regulations promulgated by federal government agencies.
	CHP	California Highway Patrol.
	Ci	Curie (see Technical Terms).
	COC	Constituent of concern.
	CRD	Catalytic reductive dehalogenation.
	CRMP	Cultural Resource Management Plan.
	CRWQCB	California Regional Water Quality Control Board.
	CVRWQCB	Central Valley Regional Water Quality Control Board.
	CWG	Community Work Group.
D	DCG	Derived Concentration Guide (see Technical Terms).

	DMP	Detection Monitoring Program.
	DO	Dissolved oxygen.
	DoD	U.S. Department of Defense.
	DOE	U.S. Department of Energy. The federal agency that is responsible for conducting energy research and regulating nuclear materials used for weapons production.
	DOI	U.S. Department of the Interior.
	DOT	U.S. Department of Transportation.
	DRB	Drainage Retention Basin. Man-made, lined pond used to capture storm water runoff and treated water at the LLNL Livermore site.
	DTSC	California Environmental Protection Agency, Department of Toxic Substances Control.
	DWTF	Decontamination and Waste Treatment Facility.
E	EDE	Effective dose equivalent (see Technical Terms).
	EDO	Environmental Duty Officer.
	EIR	Environmental Impact Report. A detailed report prepared pursuant to CEQA on the environmental impacts from any action carried out, approved, or funded by a California state, regional, or local agency.
	EIS	Environmental Impact Statement. A detailed report, required by the National Environmental Policy Act, on the environmental impacts from a federally approved or funded project. An EIS must be prepared by a federal agency when a "major" federal action that will have "significant" environmental impacts is planned.
	EOG	Environmental Operations Group.
	EPA	U.S. Environmental Protection Agency. The federal agency responsible for enforcing federal environmental laws. Although some of this responsibility may be delegated to state and local regulatory agencies, EPA retains oversight authority to ensure protection of human health and the environment.
	EPCRA	Emergency Planning and Community Right-to-Know Act of 1986. EPCRA requires facilities that produce, use, or store hazardous substances to report releases of reportable quantities or hazardous substances to the environment.

	EPD	Environmental Protection Department (LLNL).
	ERD	Environmental Restoration Division of the Environmental Protection Department at LLNL.
	ES&H	Environmental, Safety, and Health.
	EST	Environmental Support Team.
	EWSF	Explosives Waste Storage Facility.
	EWTF	Explosives Waste Treatment Facility.
F	FFA	Federal facility agreement. A negotiated agreement that specifies required actions at a federal facility as agreed upon by various agencies (e.g., EPA, RWQCB, and DOE).
	FONSI	Finding of no significant impact.
	Freon 113	1,1,2-trichloro-1,2,2-trifluoroethane.
	FTF	Field tracking forms.
G	g	Gram. The standard metric measure of weight approximately equal to 0.035 ounce.
	GAC	Granulated activated carbon.
	GBq	Gigabecquerel. 1×10^9 Becquerel.
	GENMIN	General mineral site of analyses performed on ground water samples.
	GFI	Ground fault interrupt.
	GSA	General Services Area (LLNL Site 300).
	GWP	Ground Water Project.
	GWPMP	Ground Water Project Management Program.
	GWTF	Ground Water Treatment Facility.
	GWTS	Ground Water Treatment System.
	Gy	Gray. The SI unit of measure for absorbed dose; the quantity of energy imparted by ionizing radiation to a unit mass of matter, such as tissue. One gray equals 100 rads, or one joule per kilogram. (See “Gray” in Technical Terms.)
H	HCD	Hazards Control Department.

	HE	High explosives. Materials that release large amounts of chemical energy when detonated.
	HEPA	High-efficiency particulate air (filter).
	HEPA filter	A high-efficiency particulate air filter used to capture particulates in an air stream. A HEPA filter is a throwaway, extended-media, dry type filter with a rigid casing enclosing the full depths of the pleats. HEPA filter collection efficiencies are at least 99.97% for 0.3 micrometer diameter particules.
	HMX	Cyclotetramethyltetramine, a high-explosive compound. Also referred to as octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine.
	HPGe	High-purity germanium.
	HSD	(Tukey-Kramer) honestly significant difference (test).
	HSU	Hydrostratigraphic unit.
	HT	Tritiated hydrogen gas. Tritium is the hydrogen isotope with one proton and two neutrons in the nucleus. It emits a low-energy beta particle and has a half-life of 12.3 years.
	HTO	Tritiated water and water vapor (see HT).
	HWCA	California Hazardous Waste Control Act. This legislation specifies requirements for the management of hazardous wastes in California.
	HWM	Hazardous Waste Management Division of the Environmental Protection Department at LLNL.
I	ICRP	International Commission on Radiological Protection. An international organization that studies radiation, including its measurement and effects.
	IMS	Instrumented Membrane System.
	IQR	Interquartile range (see Technical Terms).
	ISD	Interim status document.
	ISMS	Integrated safety management system.
	ITRC	Environmental Council of States Interstate Technology and Regulatory Cooperation.
L	LLNL	Lawrence Livermore National Laboratory.
	LUFT	Leaking underground fuel tank.

	LWRP	Livermore Water Reclamation Plant. The City of Livermore's municipal wastewater treatment plant, which accepts discharges from the LLNL Livermore site.
M	MCL	Maximum contaminant level in drinking water established by EPA or DTSC.
	MDC	Minimum detectable concentration.
	MDL	Minimum detection limit.
	MEI	Maximally exposed individual member of the public.
	ML	Megaliter. 10^6 liters.
	mL	Milliliter. 10^{-3} liter = 1 cm^3.
	MOLE	Miniature Optical Lair Explorer.
	MPN	Most probable number.
	mR	Milliroentgen. 10^{-3} roentgen.
	mrem	Millirem. 10^{-3} rem.
	MRP	Monitoring and Reporting Program.
	MSDS	Material Safety Data Sheet.
	mSv	Millisievert. 10^{-3} sievert.
	MTBE	Methyl tertiary-butyl ether.
N	NCR	Nonconformance Report.
	NCRP	National Council on Radiation Protection.
	NEPA	National Environmental Policy Act. This federal legislation, enacted in 1969, requires all federal agencies to document and consider environmental impacts from federally funded or approved projects. DOE is responsible for NEPA compliance at LLNL.
	NESHAPs	National Emission Standards for Hazardous Air Pollutants. These standards are found in the Clean Air Act and set limits for hazardous air pollutants.
	NHPA	National Historical Preservation Act.
	NIF	National Ignition Facility.

	NIST	National Institute for Standards and Technology. The federal agency, formerly known as the National Bureau of Standards, responsible for reference materials against which laboratory materials are calibrated.
	NOV	Notice of Violation.
	NPDES	National Pollutant Discharge Elimination System. This federal regulation, under the Clean Water Act, requires permits for discharges into surface waterways.
	NPDESMETALS	Suite of metal analysis performed on ground water samples required under NPDES.
	NPL	National Priorities List.
	NRC	Nuclear Regulatory Commission. The federal agency charged with oversight of nuclear power and nuclear machinery and applications not regulated by DOE or the Department of Defense.
O	OBT	Organically bound tritium.
	ORAD	Operations and Regulatory Affairs Division of the Environmental Protection Department at LLNL.
	OSP	Operational safety plan.
	OU	Operable Unit.
P	P2	Pollution Prevention.
	PCB	Polychlorinated biphenyl.
	PCE	Tetrachloroethene (or perchloroethylene).
	pCi	Picocurie. 1×10^{-12} Ci.
	PeerRP	Peer Review Panel.
	PEIS	Programmatic Environmental Impact Statement.
	PHA	Public Health Assessment.
	PM	Performance measure.
	PMCL	Primary maximum contaminant level.
	ppb	Parts per billion. A unit of measure for the concentration of a substance in its surrounding medium. For example, one billion grams of water containing one gram of salt has a salt concentration of one part per billion.

	ppm	Parts per million. A unit of measure for the concentration of a substance in its surrounding medium. For example, one million grams of water containing one gram of salt has a salt concentration of one part per million.
	ppmv	Parts per million by volume.
	PPOA	Pollution Prevention Opportunity Assessment.
	PRG	Preliminary remediation goal.
	PTU	Portable treatment unit.
Q	QA	Quality assurance.
	QC	Quality control.
R	R	Roentgen, (see Technical Terms).
	RAIP	Remedial Action Implementation Plan.
	RCRA	Resource Conservation and Recovery Act of 1976. RCRA is a program of federal laws and regulations that govern the management of hazardous wastes. RCRA is applicable to all entities that manage hazardous wastes.
	RDX	Hexahydro-1,3,5-trinitro-1,3,5-triazine. A high-explosive compound.
	RHB	Radiological Health Branch
	RL	Reporting limit.
	RML	Radiological Measurements Laboratory.
	RMMA	Radioactive Materials Management Area.
	ROD	Record of Decision.
	RPM	Remedial Project Manager.
	RWQCB	Regional Water Quality Control Board. The California regional agency responsible for water quality standards and the enforcement of state water quality laws within its jurisdiction. California is divided into a number of RWQCBs; the Livermore site is regulated by the San Francisco Bay Region, and Site 300 is regulated by the Central Valley Region.
S	SAA	Streambed Alteration Agreement.
	SARA	Superfund Amendment and Reauthorization Act of 1986 (see CERCLA / SARA).
	Scfm	Standard cubic feet per minute.

	SFBRWQCB	San Francisco Bay Regional Water Quality Control Board. The local agency responsible for regulating stationary air emission sources (including the Livermore site) in the San Francisco Bay Area.
	SHPO	California State Historic Preservation Office.
	SI	Système International d'Unités. An international system of physical units. Units of measure in this system include meters (length), kilogram (mass), kelvin (temperature), becquerel (radioactivity), gray (radioactive dose), and sievert (dose equivalent).
	Site 300	LLNL's Experimental Test Site, located approximately 24 km east of the Livermore site.
	SJCHD	San Joaquin County Health District. The local agency that enforces underground-tank regulations in San Joaquin County, including Site 300.
	SJVUAPCD	San Joaquin Valley Unified Air Pollution Control District. The local agency responsible for regulating stationary air emission sources (including Site 300) in San Joaquin County.
	SL	Statistical limit.
	SMCL	Secondary maximum contaminant level.
	Sandia/California	Sandia National Laboratories, California.
	SOV	Summary of violations.
	STAR	Sample tracking and receiving (computer system).
	Sv	Sievert. (See Technical Terms.)
	SVE	Soil vapor extraction.
	SVRA	State Vehicular Recreation Area.
	SWAT	Solar-powered water activated-carbon treatment.
	SWDA	State Water Drinking Act.
	SW-MEI	Sitewide maximally exposed individual member of the public.
	SWPPP	Storm Water Pollution Prevention Plan.
	SWRCB	California State Water Resources Control Board.
	SWRI	(LLNL) Site-wide Remedial Investigation (Report).
T	TBOS	Tetrabutyl orthosilicate.
	TBq	Terabecquerel. 1×10^{12} Becquerel.

	TCE	Trichloroethene.
	TDS	Total dissolved solids. The portion of solid material in a waste stream that is dissolved and passed through a filter.
	TLD	Thermoluminescent dosimeter. A device used to measure external beta or gamma radiation levels. TLDs contain a material that after exposure to beta or gamma radiation emits light when processed and heated.
	TNT	Trinitrotoluene.
	TOC	Total organic carbon. The sum of the organic material present in a sample.
	TOX	Total organic halides. The sum of the organic halides present in a sample.
	TRU	Transuranic waste.
	TSS	Total suspended solids.
	TWMS	Total Waste Management System.
U	UC	University of California.
	USEC	U.S. Enrichment Corporation.
	USFWS	U.S. Fish and Wildlife Service.
	UST	Underground storage tank.
	UV	Ultraviolet light.
V	VOC	Volatile organic compound. Liquid or solid organic compounds that have a high vapor pressure at normal pressures and temperatures and thus tend to spontaneously pass into the vapor state.
	VPP	Voluntary Protection Program.
	VTF	Vapor Treatment Facilities.
W	WAA	Waste accumulation area. An officially designated area that meets current environmental standards and guidelines for temporary (less than 90 days) storage of hazardous waste before pickup by the Hazardous Waste Management Division for off-site disposal.
	WDR	Waste Discharge Requirements. Issued by the California Regional Water Quality Control Board.
	WGMG	Water Guidance and Monitoring Group
	WQO	Water quality objective.
	WSS	Work Smart Standards.

	WTF	Working task force.
Z	Zone 7	Alameda County Flood Control and Conservation District, Zone 7.

Technical Terms

A	Absorbed dose	The amount of energy imparted to matter by ionizing radiation per unit mass of irradiated material. The absorbed dose is expressed in units of rad or gray (l rad = 0.01 gray).
	Accuracy	The closeness of the result of a measurement to the true value of the quantity measured.
	Action Level	Defined by regulatory agencies, it is the level of pollutants which, if exceeded, requires regulatory action.
	Aerosol	A gaseous suspension of very small particles of liquid or solid.
	Alluvium	Sediment deposited by flowing water.
	Alpha particle	A positively charged particle emitted from the nucleus of an atom, having mass and charge equal to those of a helium nucleus (two protons and two neutrons).
	Ambient air	The surrounding atmosphere, usually the outside air, as it exists around people, plants, and structures. It is not considered to include the air immediately adjacent to emission sources.
	Analyte	The specific component that is being measured in a chemical analysis.
	Anion	A negatively charged ion, for example Cl^-.
	ANOVA	Analysis of variance. A test of whether two or more sample means are statistically different.
	Aquifer	A saturated layer of rock or soil below the ground surface that can supply usable quantities of ground water to wells and springs. Aquifers can be a source of water for domestic, agricultural, and industrial uses.
	Aquitard	Low-permeability geologic formation that bounds an aquifer.
	Atom	The smallest particle of an element capable of entering into a chemical reaction.
	Atomic absorption spectroscopy	Abbreviated AA. A method used to determine the elemental composition of a sample. In this method, the sample is vaporized and its light absorbance measured.

B	Barcad	Device that samples water in a well. Water, collected in a discrete water bearing zone, is forced to the surface by pressurized nitrogen.
	Becquerel (Bq)	The SI unit of activity of a radionuclide, equal to the activity of a radionuclide having one spontaneous nuclear transition per second.
	Beta particle	A negatively charged particle emitted from the nucleus of an atom, having charge, mass, and other properties of an electron.
	Biochemical (biological) oxygen demand	A measure of the amount of dissolved oxygen that microorganisms need to break down organic matter in water. It is used as an indicator of water quality.
C	Categorical discharge	Discharge from a process regulated by EPA rules for specific industrial categories.
	CFC	Chlorofluorocarbon. A compound that has fluorine and chlorine atoms on a carbon backbone. Freons are common CFCs.
	Chain-of-custody	A method for documenting the history and possession of a sample from the time of its collection, through its analysis and data reporting, to its final disposition.
	Chlorocarbon	A compound of carbon and chlorine, or carbon, hydrogen, and chlorine, such as carbon tetrachloride, chloroform, and tetrachloroethene.
	Collective dose equivalent and collective effective dose equivalent	The sums of the dose equivalents or effective dose equivalents to all individuals in an exposed population within 80 km (50 miles) of the radiation source. These are evaluated by multiplying the dose received by an individual at each location by the number of individuals receiving that dose, and summing over all such products for locations within 80 km of the source. They are expressed in units of person-rem or person-sievert. The collective EDE is also referred to as the "population dose."
	Committed dose equivalent	The predicted total dose equivalent to a tissue or organ over a 50-year period after an intake of a radionuclide into the body. It does not include contributions from external dose. Committed dose equivalent is expressed in units of rem (or sievert; 100 rem equals one sievert).
	Committed effective dose equivalent	The sum of the committed dose equivalents to various tissues in the body, each multiplied by an appropriate weighting factor representing the relative vulnerability of different parts of the body to radiation. Committed effective dose equivalent is expressed in units of rem or sievert.

	Cosmic radiation	Radiation with very high energies, originating outside the earth's atmosphere. Cosmic radiation is one source contributing to natural background radiation.
	Curie	A unit of measurement of radioactivity, defined as the amount of radioactive material in which the decay rate is 3.7×10^{10} disintegrations per second or 2.22×10^{12} disintegrations per minute; one Ci is approximately equal to the decay rate of one gram of pure radium.
D	Daughter nuclide	A nuclide formed by the radioactive decay of another nuclide, which is called the parent.
	Depleted uranium	Uranium having a lower proportion of the isotope ^{235}U than is found in naturally occurring uranium; the fractions of ^{238}U, ^{234}U, and ^{235}U that we use for depleted uranium are defined in Supplement 12-3. Depleted uranium is sometimes referred to as D-38.
	DCG	Derived Concentration Guide. Concentrations of radionuclides in water and air that could be continuously consumed or inhaled for one year and not exceed the DOE primary radiation standard to the public (100 mrem / y EDE).
	De minimis	Shortened form of "de minimis non curat lex," which means, "The law does not care for, or take notice of, very small or trifling matters." A "de minimis level" would be a level that is so inconsequential that, by definition, it cannot be cause for concern.
	Dose	The energy imparted to matter by ionizing radiation; the unit of absorbed dose is the rad, equal to 0.01 joules per kilogram for irradiated material in any medium.
	Dose commitment	The dose which an organ or tissue would receive during a specified period of time (e.g., 50 or 70 years) as a result of one year's intake of one or more radionuclides.
	Dose equivalent	The product of absorbed dose in rad (or gray) in tissue and a quality factor representing the relative damage caused to living tissue by different kinds of radiation, and perhaps other modifying factors representing the distribution of radiation, etc. Dose equivalent is expressed in units of rem or sievert (l rem = 0.01 sievert).
	Dosimeter	A portable detection device for measuring the total accumulated exposure to ionizing radiation.
	Dosimetry	The theory and application of the principles and techniques of measuring and recording radiation doses.

	Downgradient	In the direction of ground water flow from a designated area; analogous to downstream.
E	Effective dose equivalent (EDE)	An estimate of the total risk of potential effects from radiation exposure. It is the summation of the products of the dose equivalent and weighting factor for each tissue. The weighting factor is the decimal fraction of the risk arising from irradiation of a selected tissue to the total risk when the whole body is irradiated uniformly to the same dose equivalent. These factors permit dose equivalents from nonuniform exposure of the body to be expressed in terms of an effective dose equivalent that is numerically equal to the dose from a uniform exposure of the whole body that entails the same risk as the internal exposure (ICRP 1980). The effective dose equivalent includes the committed effective dose equivalent from internal deposition of radionuclides and the effective dose equivalent due to penetrating radiation from sources external to the body, and is expressed in units of rem (or sievert).
	Effluent	A liquid or gaseous waste discharged to the environment.
	Evapotranspiration	A process by which water is transferred from the soil to the air by plants that take the water up through their roots and release it through their leaves and other aboveground tissue.
F	Federal facility	A facility that is owned or operated by the federal government. Federal facilities are subject to the same requirements as other responsible parties once placed on the Superfund National Priorities List.
	Federal Register	A document published daily by the federal government containing notification of government agency actions. The Federal Register contains notification of EPA and DOE actions, including notification of EPA and DOE decisions concerning permit applications and rule-making.
G	Gamma ray	High-energy, short-wavelength, electromagnetic radiation emitted from the nucleus of an atom. Gamma radiation frequently accompanies the emission of alpha or beta particles.
	Gray	The SI unit of measure for absorbed dose; the quantity of energy imparted by ionizing radiation to a unit mass of matter, such as tissue. One gray equals 100 rads, or 1 joule per kilogram.
	Ground water	All subsurface water.

H	Half-life (radiological)	The time required for one-half the radioactive atoms in a given amount of material to decay. After one half-life, half of the atoms will have decayed; after two half-lives, three-fourths; after three half-lives, seven-eighths; and so on, exponentially.
	Hazardous waste	Wastes exhibiting any of the following characteristics: ignitability, corrosivity, reactivity, or EP-toxicity (yielding toxic constituents in a leaching test). In addition, EPA has listed as hazardous other wastes that do not necessarily exhibit these characteristics. Although the legal definition of hazardous waste is complex, the term more generally refers to any waste that EPA believes could pose a threat to human health and the environment if managed improperly.
	Hydraulic conductivity	
	Hydraulic gradient	In an aquifer, the rate of change of total head (water-level elevation) per unit distance of flow at a given point and in a given direction.
	Hydrology	The science dealing with the properties, distribution, and circulation of natural water systems.
I	Inorganic compounds	Compounds that either do not contain carbon or do not contain hydrogen along with carbon. Inorganic compounds include metals, salts, and various carbon oxides (e.g., carbon monoxide and carbon dioxide).
	In situ	A term that can be used to refer to the treatment of contaminated areas in place, i.e., without excavation or other removal, as in the in situ treatment of soils through biodegradation of contaminants on site.
	Interim status	A legal classification that applies to hazardous waste incinerators or other hazardous waste management facilities that were under construction or in operation by November 19, 1980, and can meet other interim status requirements. Interim status facilities may operate while EPA considers their permit application.
	IQR	Interquartile range. The distance between the top of the lower quartile and the bottom of the upper quartile. The IQR provides a measure of the spread of data.
	Isotopes	Forms of an element having the same number of protons in their nuclei, but differing numbers of neutrons.
L	Liter	The SI measure of capacity approximately equal to 1.057 quart.

	Less than detection limits	A phrase indicating that a chemical constituent was either not identified or not quantified at the lowest level of sensitivity of the analytical method being employed by the laboratory. Therefore, the chemical constituent either is not present in the sample, or it is present in such a small concentration that it cannot be measured by the analytical procedure.
	Low-level waste	Waste defined by DOE Order 5820.2A. Low-level waste contains transuranic nuclide concentrations less than 100 nCi/g.
	Lower limit of detection	The smallest concentration or amount of analyte that can be detected in a sample at a 95% confidence level.
	Lysimeter	An instrument for measuring the water percolating through soils and determining the dissolved materials.
M	Maximally Exposed Individual	The maximally exposed individual is a hypothetical member of the public at a fixed location who, over an entire year, receives the maximum effective dose equivalent (summed over all pathways) from a given source of radionuclide releases to air. Generally, the MEI is different for each source at a site.
	Multiple completion	A borehole with water surveillance monitoring devices (Barcads) placed at various levels and separated by impermeable layers of material such as grout. Usually the uppermost "completion" is accessible from the surface, making physical sample-taking possible (as opposed to Barcads), and is referred to as a well.
	Mixed waste	Waste that has the properties of both hazardous and radioactive waste.
N	Nonpoint source	Any nonconfined area from which pollutants are discharged into a body of water (e.g., agricultural runoff, construction runoff, and parking lot drainage), or into air (e.g., a pile of uranium tailings).
	Nuclide	A species of atom characterized by the constitution of its nucleus. The nuclear constitution is specified by the number of protons, number of neutrons, and energy content; or, alternatively, by the atomic number, mass number, and atomic mass. To be regarded as a distinct nuclide, the atom must be capable of existing for a measurable length of time.
O	Off-site	Outside the boundaries of the LLNL Livermore site and Site 300 properties.
	On-site	Within the boundaries of the LLNL Livermore site or Site 300 properties.

P	Part B permit	The second, narrative section submitted by generators in the RCRA permitting process. It covers in detail the procedures followed at a facility to protect human health and the environment.
	Perched aquifer	Aquifer that is separated from another water-bearing stratum by an impermeable layer.
	Performance standards (incinerators)	Specific regulatory requirements established by EPA limiting the concentrations of designated organic compounds, particulate matter, and hydrogen chloride in incinerator emissions.
	pH	A measure of hydrogen ion concentration in an aqueous solution. Acidic solutions have a pH from 0 to 6; basic solutions have a pH greater than 7; and neutral solutions have a pH of 7.
	Piezometer	Instrument for measuring fluid pressure. Generally used to measure the elevation of the water table in a small, nonpumping well.
	Pliocene	Geological epoch of the Tertiary period, starting about 12 million years ago.
	PM-10	Fine particulate matter with an aerodynamic diameter equal to or less than 10 microns.
	Point source	Any confined and discrete conveyance (e.g., pipe, ditch, well, or stack).
	Pretreatment	Any process used to reduce a pollutant load before it enters the sewer system.
	Pretreatment regulations	National wastewater pretreatment regulations, adopted by EPA in compliance with the 1977 amendments to the Clean Water Act, which required that EPA establish pretreatment standards for existing and new industrial sources.
	Priority pollutants	A set of organic and inorganic chemicals identified by EPA as indicators of environmental contamination.
Q	Quality assurance (QA)	A system of activities whose purpose is to provide the assurance that standards of quality are attained with a stated level of confidence.
	Quality control (QC)	Procedures used to verify that prescribed standards of performance are attained.

	Quality factor	The factor by which the absorbed dose (rad) is multiplied to obtain a quantity that expresses (on a common scale for all ionizing radiation) the biological damage to exposed persons. Quality factor is used because some types of radiation, such as alpha particles, are biologically more damaging than others. Quality factors for alpha, beta, and gamma radiation are in the ratio 20:1:1.
	Quaternary	The geologic era encompassing the last 2–3 million years.
R	Rad	The unit of absorbed dose. It is the quantity of energy imparted by ionizing radiation to a unit mass of matter such as tissue. One rad equals 0.01 joule per kilogram, or 0.01 gray.
	Radioactive decay	The spontaneous transformation of one radionuclide into a different nuclide (which may or may not be radioactive), or de-excitation to a lower energy state of the nucleus by emission of nuclear radiation, primarily alpha or beta particles, or gamma rays (photons).
	Radioactivity	The spontaneous emission of nuclear radiation, generally alpha or beta particles, or gamma rays, from the nucleus of an unstable isotope.
	Radionuclide	An unstable nuclide. See nuclide and radioactivity.
	Rem	A unit of radiation dose equivalent and effective dose equivalent describing the effectiveness of a type of radiation to produce biological effects; coined from the phrase “roentgen equivalent man.” It is the product of the absorbed dose (rad), a quality factor (Q), a distribution factor, and other necessary modifying factors. One rem equals 0.01 sievert.
	Risk assessment	The use of established methods to measure the risks posed by an activity or exposure. In the present context, risk assessments evaluate: (1) the relationship between exposure to radioactive substances and the subsequent occurrence of health effects; and (2) the likelihood for that exposure to occur.
	Roentgen	A unit of measurement used to express radiation exposure in terms of the amount of ionization produced in a volume of air.
S	Sampling and Analysis Plan	A detailed document describing the procedures used to collect, handle, and analyze ground water samples. The plan details quality control measures that will be implemented to ensure that sample-collection, analysis, and data-presentation activities meet the prescribed requirements.

Sanitary waste	Most simply, waste generated by routine operations that is not regulated as hazardous or radioactive by state or federal agencies.
Saturated zone	A subsurface zone below which all rock pore-space is filled with water; also called the phreatic zone.
Sensitivity	The capability of methodology or instrumentation to discriminate between samples having differing concentrations or containing varying amounts of analyte.
Sewerage	The system of sewers.
Sievert (Sv)	The SI unit of radiation dose equivalent and effective dose equivalent. This is the product of the absorbed dose (gray), quality factor (Q), distribution factor, and other necessary modifying factors. One sievert equals 100 rem.
Sitewide Maximally Exposed Individual (SW-MEI):	The sitewide maximally exposed individual member of the public is defined as the hypothetical person who receives, at the location of a given publicly accessible facility (such as a church, school, business, or residence), the greatest LLNL-induced effective dose equivalent (summed over all pathways) from all sources of radionuclide releases to air at a site. Doses at this receptor location caused by each emission source are summed, and yield a larger value than for the location of any other similar public facility. This individual is assumed to continuously reside at this location 24 hours per day, 365 days per year.
Specific conductance	Measure of the ability of a material to conduct electricity. Also called conductivity.
Superfund	The common name used for the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA). California has also established a "State Superfund" under provisions of the California Hazardous Waste Control Act.
Surface impoundment	A facility or part of a facility that is a natural topographic depression, man-made excavation, or diked area formed primarily of earthen materials, although it may be lined with man-made materials. The impoundment is designed to hold an accumulation of liquid wastes, or wastes containing free liquids, and is not an injection well. Examples of surface impoundments are holding, storage, settling and aeration pits, ponds, and lagoons.

T	Tritium	The radioactive isotope of hydrogen, containing one proton and two neutrons in its nucleus. It decays at a half-life of 12.3 years by emitting a low-energy beta particle.
	Transuranic waste	Material contaminated with alpha-emitting transuranium nuclides, which have an atomic number greater than 92 (e.g. ^{239}Pu), half-lives longer than 20 years, and are present in concentrations greater than 100 nCi/g of waste.
	Tukey-Kramer HSD Test	The Tukey-Kramer honestly significant difference test, a statistical technique for testing differences among group means.
U	Unsaturated zone	That portion of the subsurface in which the pores are only partially filled with water. The direction of water flow is vertical in this zone; which is also referred to as the vadose zone.
V	Vadose zone	The partially saturated or unsaturated region above the water table that does not yield water to wells.
W	Wastewater treatment system	A collection of treatment processes and facilities designed and built to reduce the amount of suspended solids, bacteria, oxygen-demanding materials, and chemical constituents in wastewater.
	Water table	The water-level surface below the ground at which the unsaturated zone ends and the saturated zone begins. It is the level to which a well that is screened in the unconfined aquifer would fill with water.
	Weighting factor	A value used to calculate dose equivalents. It is tissue-specific and represents the fraction of the total health risk resulting from uniform, whole-body irradiation that could be contributed to that particular tissue. The weighting factors used in this report are recommended by the International Commission on Radiological Protection (ICRP 1980).
	Wind rose	A diagram that shows the frequency and intensity of wind from different directions at a specific location.
Z	Zone 7	The common name for the Alameda County Flood Control and Water Conservation District. Zone 7 is the water management agency for the Livermore-Amador Valley with responsibility for water treatment and distribution. Zone 7 is also responsible for management of agricultural and surface water and the ground water basin.